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From a free-body diagram of the platform the equilibrium equations give

$$\rightarrow \Sigma F_x = 0: \quad F_{AC} \cos \theta - F_{BD} \cos \theta = 0$$

$$\uparrow \Sigma F_y = 0: \quad F_{AC} \sin \theta + F_{BD} \sin \theta - P = 0$$

$$F_{BD} = F_{AC}$$

$$P = 2F_{AC} \sin \theta$$

Then from a free-body diagram of the screw-block *A*, the equilibrium equations give

$$\rightarrow \Sigma F_x = 0: \quad 800 - F_{AC} \cos \theta - F_{AE} \cos \theta = 0$$

$$\uparrow \Sigma F_y = 0: \quad F_{AE} \sin \theta - F_{AC} \sin \theta = 0$$

$$F_{AE} = F_{AC} = \frac{400}{\cos \theta}$$

Therefore

$$\theta = 15^\circ \quad F_{AC} = 414.110 \text{ N}$$

$$P = 214 \text{ N} \dots\dots\dots \text{Ans.}$$

$$\theta = 30^\circ \quad F_{AC} = 461.880 \text{ N}$$

$$P = 462 \text{ N} \dots\dots\dots \text{Ans.}$$

$$\theta = 45^\circ \quad F_{AC} = 565.685 \text{ N}$$

$$P = 800 \text{ N} \dots\dots\dots \text{Ans.}$$

